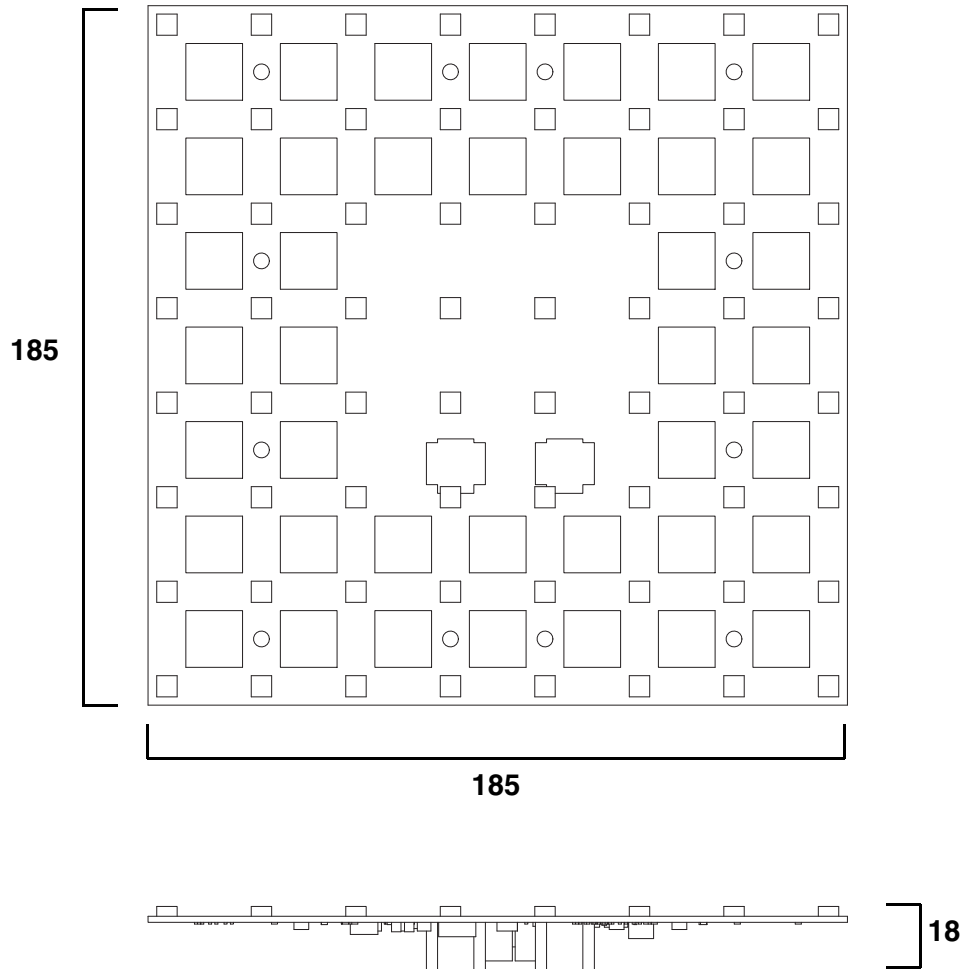


VC-Grid™

User Manual

Dimensions

All measurements are expressed in millimeters



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Safety Information



WARNING!

Read the safety precautions in this section before installing, powering, operating or servicing this product.

The following symbols are used to identify important safety information on the product and in this document:



Warning!
Safety hazard.
Risk of severe
injury or
death.



Warning!
Hazardous
voltage. Risk
of severe or
lethal electric
shock.



Warning!
Fire hazard.



Warning!
Refer to
manual before
installing,
powering or
servicing.



Warning! Read this user manual before installing and operating the Martin VC-Grid™ and keep this manual for future reference.



Warning! The VC-Grid is designed to integrate with other Martin™ devices in a video display installation. Follow the safety precautions given not only in this user manual but also in the manuals of all the devices you connect to it. Observe all warnings given in the manuals and printed on devices. Install, connect and operate devices only as described in this manual and each device's manual and only in accordance with local laws and regulations. All Martin™ manuals are supplied with devices and also available for download from www.martin.com.

Warning! The VC-Grid is not for household use. It presents risks of severe injury or death due to fire and burn hazards, electric shock and falls. It must be installed by qualified technicians only.

Warning! The VC-Grid does not have user-serviceable parts. Refer any operation not described in this manual to Martin™ or its authorized service agents.

If you have any questions about how to operate the VC-Grid safely, please contact your Martin™ supplier or call the Martin™ 24-hour service hotline on +45 8740 0000, or in the USA on 1-888-tech-180.



PROTECTION FROM ELECTRIC SHOCK

- Connect the VC-Grid only to the Martin™ devices specified and installed as directed in this user manual.
- Check and respect the directions given in the user manuals of all the devices that you intend to connect to the VC-Grid, particularly the instructions, warnings and limits that apply to:
 - system layout,
 - connections to other devices,
 - specified cables,
 - maximum cable lengths, and
 - maximum number of devices that can be connected.
- Use only the cables specified by Martin™ for the devices concerned to interconnect them. If the specified cables are not long enough for an intended cable run, consult Martin™ for assistance in finding or creating a safe alternative cable

- Each VC-Grid 8x8 25 consumes up to 30 W. Do not interconnect VC-Grids 8x8 25s in a chain with a total power consumption that exceeds either:
 - 360 W maximum or
 - the maximum safe power rating of the DC output on the external PSU (power supply unit) used, whichever is lower. Each time you reach 360 W – or the PSU output's maximum power rating if lower than 360 W – use a new PSU output to continue connecting VC-Grids to 48 VDC power.
- When you create an interconnected chain of VC-Grids, do not allow the total length of the cables used in the chain to exceed a maximum of 50 m (164 ft.) from the Martin P3 PowerPort 1500™ or the external PSU to the last VC-Grid at the end of the chain
- Provide a means of locking out AC mains power that allows power to the installation to be shut down and made impossible to reapply, even accidentally, during work on the installation.
- Shut down power to the installation during service and when it is not in use.
- Before applying power to the installation, check that all power distribution equipment and cables are in perfect condition and rated for the current requirements of all connected devices.
- Isolate the installation from power immediately if the product, power cable or power plug are in any way damaged, defective or wet, or if they show signs of overheating.
- Do not expose the VC-Grid to rain or moisture.



PROTECTION FROM BURNS AND FIRE

- Provide free airflow and a minimum clearance of 10 mm (0.4 in.) around the front of the VC-Grid.
- Do not operate the VC-Grid if the ambient temperature (Ta) exceeds 45° C (113° F).
- Do not modify the VC-Grid in any way not described in this manual or install other than genuine Martin™ parts. Use only accessories approved by Martin™.



PROTECTION FROM INJURY

- When installing the VC-Grid above ground level, ensure that the installation hardware and supporting structure can hold at least 10 times the weight of all the devices they support.
- In an overhead installation or where the VC-Grid may cause injury if it falls:
 - block access below the work area and work from a stable platform whenever installing, servicing or moving the VC-Grid, and
 - as soon as work is completed, check that all hardware and components are securely in place and fastened to supporting structures.

Introduction

Thank you for selecting the Martin VC-Grid™. This compact LED-based display module is designed to integrate into a Martin P3™ video system and can also be controlled using DMX.

The VC-Grid combines flexibility and simplicity with high-quality video display capabilities. Used with or without a front diffuser, multiple VC-Grids can be combined in ways that give exceptional creative flexibility. A hybrid power and data cabling system allows VC-Grids to be daisy-chained for easy setup and minimal cabling.

The VC-Grid 8x8 25 is a square 8 x 8 array of LEDs with a 25 mm pitch (center-to-center distance). It offers the following features:

- 64 individually controllable pixels
- 4000 nits brightness (calibrated mode)
- High-quality 16-bit per color image processing technology
- Pixel-level brightness and color calibration for optimal image quality
- P3 and DMX control with automatic protocol detection
- Intuitive pixel mapping and addressing using a Martin P3™ system controller
- Single hybrid cable for power and data input and throughput
- RGB, warm white, medium white and cool white versions
- External power and data processor (Martin P3 PowerPort 1500™) and simple cabling system

Martin™ user documentation is supplied with products and available for download from the Martin™ website at <http://www.martin.com>, where you can also find the latest specifications, firmware updates and support information for all Martin™ products.

Martin™ welcomes input from users. Comments or suggestions regarding this manual can be e-mailed to service@martin.dk or posted to: Technical Documentation, Martin Professional A/S, Olof Palmes Allé 18, DK-8200 Aarhus N, Denmark.

Electrostatic discharge precautions



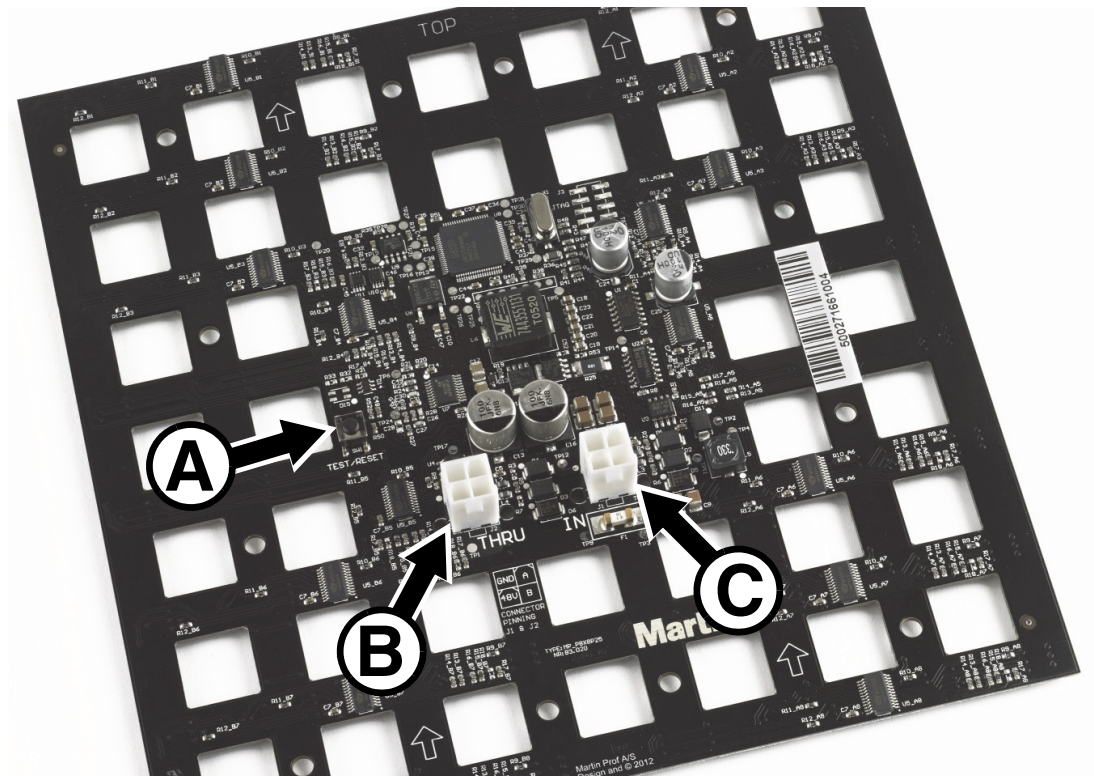
Important! Components on the VC-Grid are sensitive to damage by ESD (electrostatic discharge). Take the following precautions:

- **Store the VC-Grid only in its ESD shielding bag and do not remove it until you are ready to install it, and return it to its ESD shielding bag immediately if you remove it from an installation. Place it on grounded (earthed) surfaces only.**
- **Hold the VC-Grid only by its edges. Avoid touching conductive surfaces. Avoid touching components apart from the connectors and the control button. Avoid touching connector pins.**
- **Attach an ESD wrist strap to your wrist and connect its ground (earth) lead to a known ground (earth) before handling the VC-Grid.**

Unpacking

The VC-Grid is supplied in anti-static packaging. Leave products in their packaging until you are ready to install them.

VC-Grid overview



A - Control button

B - 48 VDC power + data throughput (THRU)

C - 48 VDC power + data input (IN)

Figure 1: Overview

Physical installation

The VC-Grid can be installed in any orientation.

The backs of modules are marked with arrows and the word **TOP**. To ensure the most evenly matched optical characteristics when viewing VC-Grids at an angle, install all modules with the arrows facing the same way. In vertical arrays, install all modules with the arrows pointing upwards and the **TOP** marking at the upper edge of the modules.

Allow free airflow around the product and at least 10 mm (0.4 in.) of clearance around the LEDs on the front surface.

If you want to maintain 25 mm pixel spacing across multiple VC-Grid 8x8 25s so that they form a seamless display surface, install them with a 15 mm (0.59 in.) gap between their edges, both horizontally and vertically.

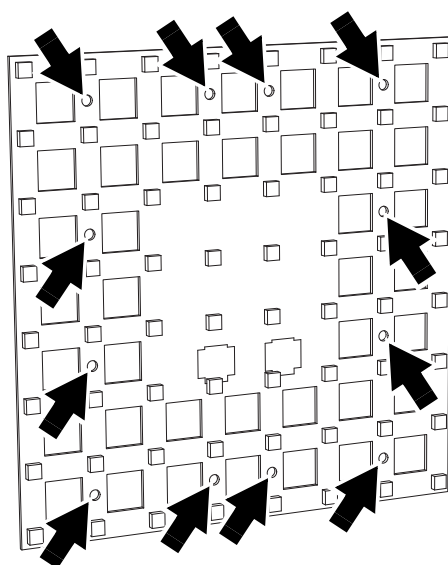


Figure 2: Mounting method

See Figure 2. The VC-Grid can be fastened to a surface or structure by installing pillar bolts evenly around the product using any four of the mounting holes (arrowed).

System installation



Warning! Connect the VC-Grid™ only to the devices specified in this manual and only using the Martin™ cables specified in this manual.



Warning! Do not exceed the maximum numbers of devices that can be connected and maximum cable lengths specified in this manual and the manuals of the devices in the system.



Warning! Do not interconnect more than a total of twelve VC-Grid 8x8 25s in one linked chain or interconnect VC-Grids in one linked chain that will exceed the maximum power rating of the PSU, whichever limit is reached first. Do not connect more than one linked chain of VC-Grids to one output from a Martin P3 PowerPort 1500™.

The VC-Grid is designed to display either Martin P3™ video or DMX-controlled lighting effects. It automatically recognizes and responds to either a Martin P3™ or a DMX data signal. The next sections explain how to create a VC-Grid installation to display P3 video data or DMX-controlled lighting effects.

Installing a P3 system

The P3 link requires Ethernet Cat 5e or better network cable. The cable run between any two devices on the link can be up to 100 m (328 ft.) in length. If necessary, a cable run can be extended beyond 100 m by inserting an unmanaged Ethernet switch or using a fiber-optic system (see the P3™ system controller user manual for details).

To install a system that displays Martin P3™ video on VC-Grids, see the overview in Figure 4 and follow these directions:

1. Make sure that no devices in the installation can be connected to AC mains power until all installation work is complete.
2. Read "Safety Information" on page 4 and "Electrostatic discharge precautions" on page 6.
3. Create a P3 video data link from a Martin P3™ system controller such as the P3-100™, P3-200™ or P3 PC™ to a Martin P3 PowerPort 1500™.
4. If required, continue the P3 video data link in a daisy-chain by connecting the P3 data throughput of one P3 PowerPort 1500™ to the P3 data input of the next, as described in the P3 PowerPort 1500™ user manual. You can connect up to fifty P3 PowerPort 1500s in a P3 data daisy-chain like this. If you need to connect more than fifty, use an unmanaged Ethernet switch to split the P3 data link into branches, each containing less than fifty P3 PowerPort 1500s.
5. Connect VC-Grids together in daisy-chained hybrid links using Martin™ hybrid PCB-to-PCB cables (see "Power + data VC-Grid to VC-Grid link cables" on page 21). Connect each cable from the THRU connector on one VC-Grid to the IN connector on the next VC-Grid (VC-Grid connectors are shown in "VC-Grid overview" on page 7).

Warning! Each hybrid link may contain up to a maximum of twelve VC-Grid 8x8 25s.

6. Connect each hybrid link of VC-Grids to one of the four 4-pin female XLR hybrid (48 VDC power + P3 data) outputs on a P3 PowerPort 1500™ using a Martin™ hybrid 4-pin male XLR to PCB adapter cable, P/N 11840158 (see Figure 3).

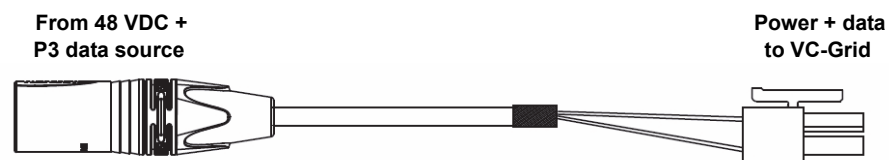


Figure 3: Hybrid-to-PCB adapter cable, P/N 11840158

If this adapter cable is not long enough, extend it by inserting a Martin™ 4-pin XLR hybrid extension cable between the adapter cable and the P3 PowerPort 1500™ hybrid output. This extension cable is available in various lengths (see "Power + data extension cables" on page 21).

7. When the P3 link and all VC-Grids are connected and you are ready to set up and test the installation:
- Connect the Martin P3 PowerPort 1500™ to AC mains power at 100 - 240 V, 50/60 Hz as described in the P3 PowerPort 1500™ user manual, then
 - connect the Martin P3 system controller to AC mains power and power the controller on.

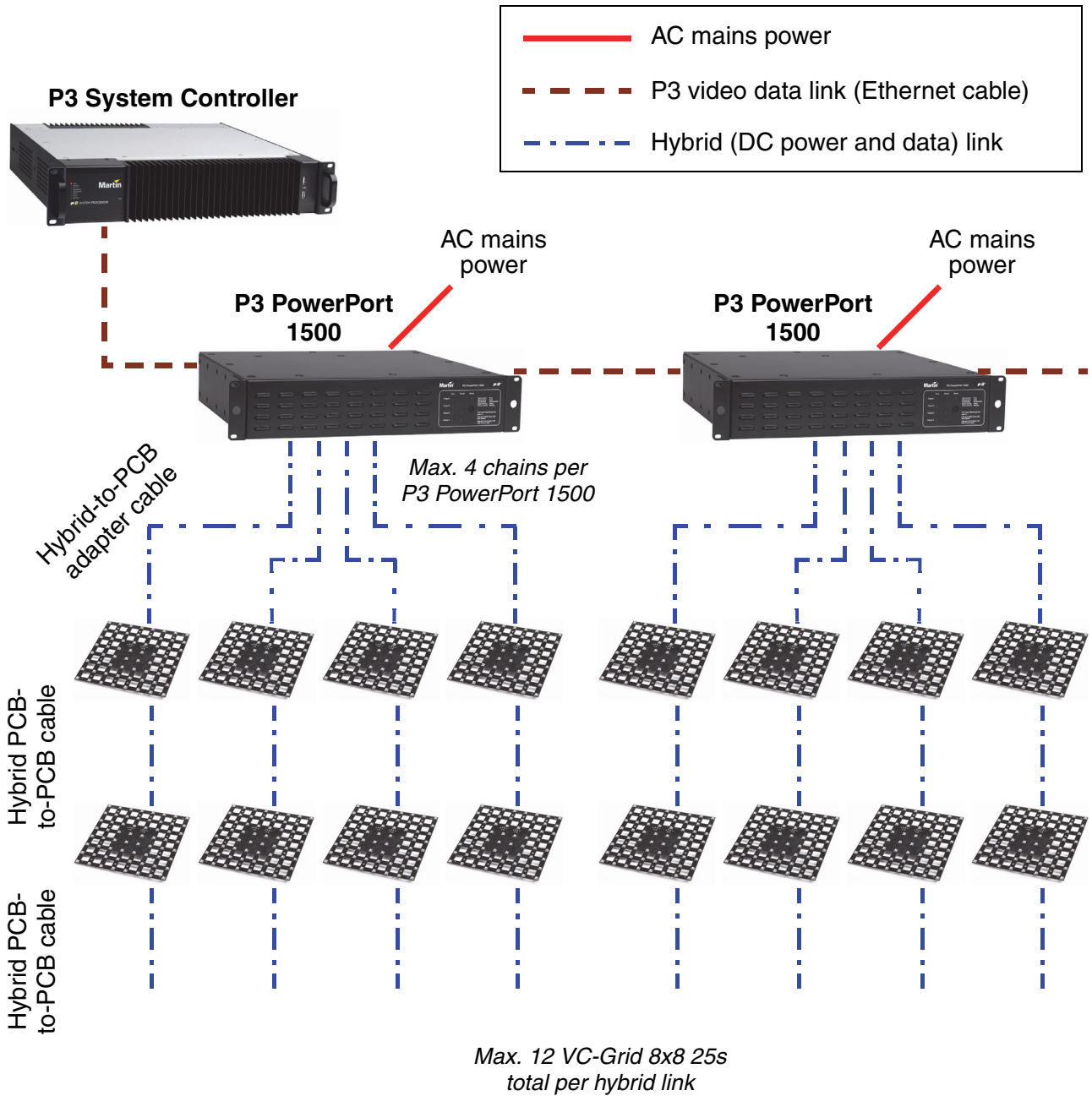


Figure 4: P3 system layout

Installing a DMX-controlled system

The DMX link requires DMX cable. It can be maximum 300 m (1000 ft.) in length, but this can be extended using an RDM-compliant amplifier/splitter such as the Martin RDM 5.5 Splitter™, P/N 90758150. The link must run in one single daisy-chain but you can split it into separate branches each time you insert an amplifier/splitter. If you would like assistance with creating a DMX link, your Martin™ supplier will be glad to advise.

The number of VC-Grids per DMX link is limited by the 512 DMX channels available in one DMX universe at the DMX controller. Each time you reach 512 channels, you must create a new DMX link in a new DMX universe. Note that this limit applies to the *DMX* link. The maximum safety limits that apply to the *hybrid* link (see “Safety Information” on page 4) must be respected in all cases.

To install a system that displays DMX-controlled lighting effects on VC-Grids, see the overview in Figure 6. and follow these directions:

1. Make sure that no devices in the installation can be connected to AC mains power until all installation work is complete.
2. Read “Safety Information” on page 4 and “Electrostatic discharge precautions” on page 6.
3. Run a DMX cable from a DMX/RDM controller such as the Martin M1™ or M-PC™ to either:
 - a Martin hybrid lead-in cable, P/N 11840171 (see Figure 5), or
 - a DMX/RDM Splitter such as the Martin 5.5 RDM Splitter™, P/N 90758150, and then to a Martin hybrid lead-in cable P/N 11840171 (see Figure 5).
4. Connect VC-Grids together in daisy-chained hybrid links using Martin™ hybrid PCB-to-PCB cables (see “Power + data VC-Grid to VC-Grid link cables” on page 21). Connect each cable from the THRU connector on one VC-Grid to the IN connector on the next VC-Grid (VC-Grid connectors are shown in “VC-Grid overview” on page 7).

Warning! Each VC-Grid hybrid link may contain up to *the lower of* these two limits:

- either a maximum of twelve VC-Grid 8x8 25s
 - or the maximum number of VC-Grids that can be interconnected without exceeding the power rating of the external PSU (power supply unit) output that the hybrid link will be connected to.
5. See Figure 5. Connect a Martin™ hybrid-to-PCB adapter cable (P/N 11840158) to the first VC-Grid of each hybrid link, then connect it to the Martin™ hybrid lead-in cable (P/N 11840171).
 6. Connect the two DC power wires on the hybrid lead-in cable to a DC output on a 48 VDC PSU such as the Mean Well SP-480 48. Connect the white wire to positive (+ve) and the black wire to negative (-ve).
 7. Connect the 5-pin male XLR connector on the hybrid lead-in cable to an RDM-compliant DMX controller.

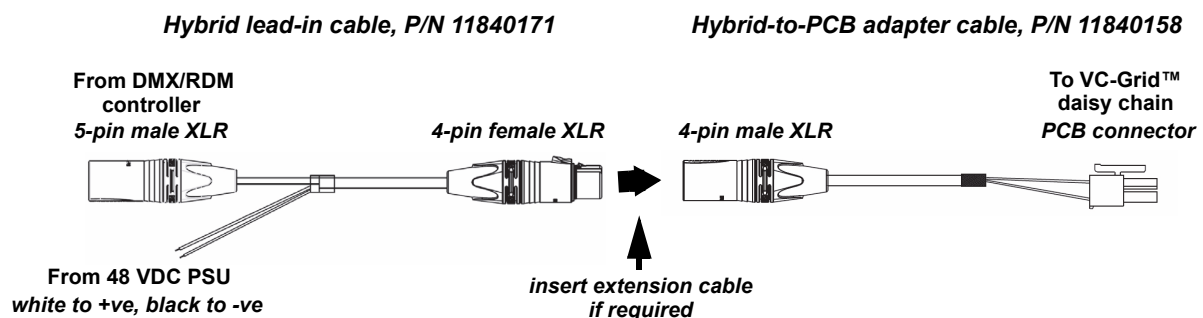


Figure 5: Power and DMX data input to a VC-Grid daisy-chain

If you need a longer cable run to a VC-Grid daisy chain, extend the arrangement shown in Figure 5 by inserting a Martin™ 4-pin XLR hybrid extension cable between the Hybrid lead-in cable P/N 11840171 and the Hybrid-to-PCB adapter cable P/N 11840158. Hybrid extension cable is available from Martin™ in various lengths. See “Power + data extension cables” on page 21 for ordering information.

8. When the DMX link, 48 VDC power link and all VC-Grids are connected and you are ready to set up and test the installation:
 - Connect the external PSU to AC mains power as described in its user manual, then
 - connect the DMX controller to AC mains power and power the controller on.

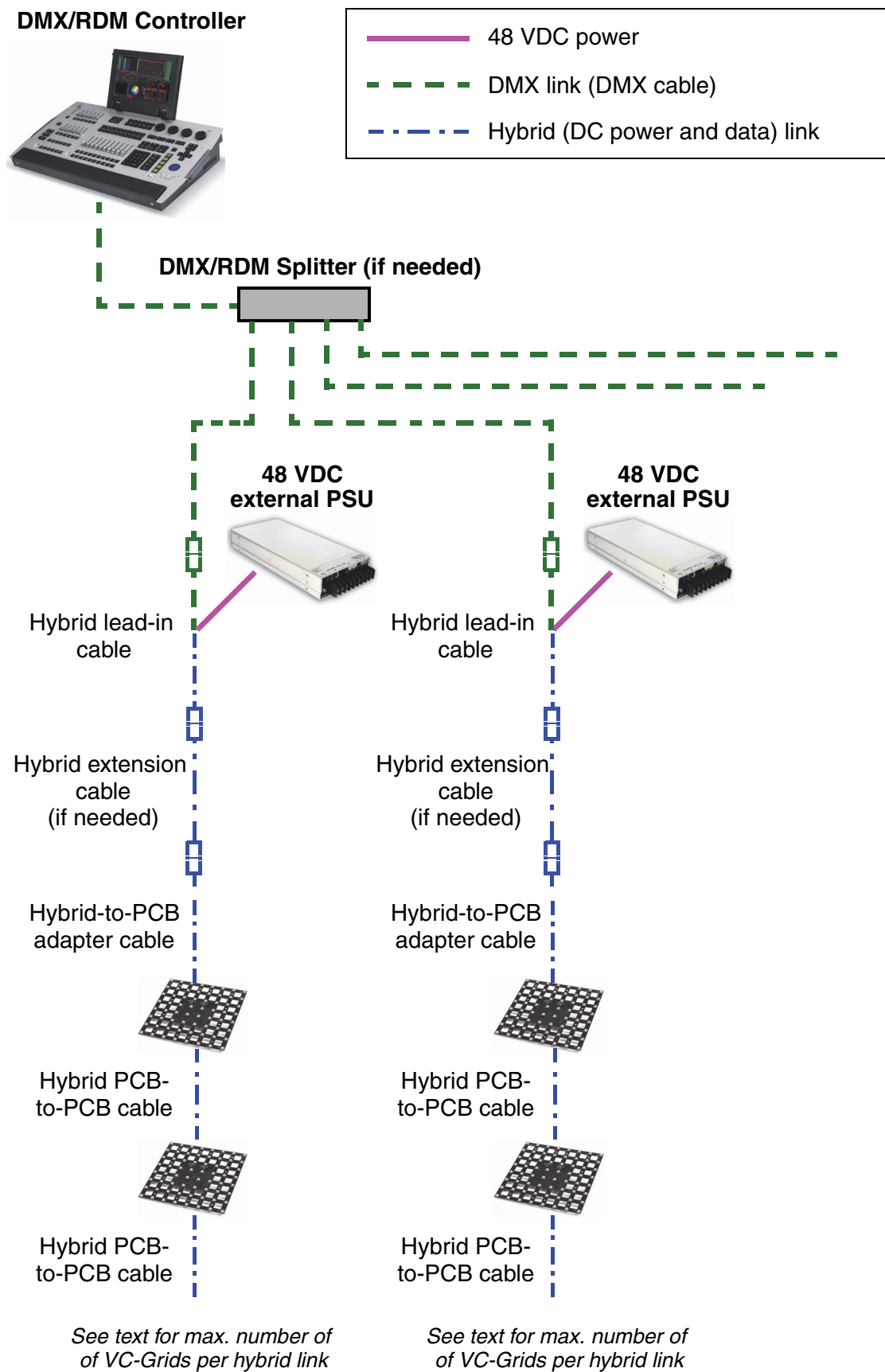


Figure 6: DMX system layout

System setup



Warning! Before applying power to the VC-Grid:

- **Carefully review the safety information starting on page 4**
- **Check that the installation is safe and secure.**

Setting up for P3 display

A Martin P3™ system allows video to be displayed on an installation that consists of or includes VC-Grid devices. When a P3 controller is connected to the data link and the installation is powered on, you can set up all the devices on the link from the P3 controller. See the P3 controller user manual for details.

Setting up for DMX control

A DMX system gives 0 - 100% variable intensity control. Varying the intensity of red, blue and green LEDs in RGB products provides RGB color mixing.

You can set up and control a VC-Grid installation over the data link using an RDM-compatible DMX controller such as the Martin M-PC™ Windows application (running on a PC connected to a USB/DMX interface such as the Martin USB Duo™ DMX Interface) or the Martin M1™ DMX/RDM control console. The interface on the Martin M1™ monitor screen is basically identical to the Martin M-PC™ interface.

DMX control channels

DMX controllers send control data on DMX control channels in DMX universes. One DMX universe has 512 channels available. RGB control of each individually controlled element in an installation requires three channels, white intensity control requires one channel.

A VC-Grid installation can be controlled as groups of pixels or as individual pixels:

- A group can consist of an entire installation, any part of an installation or separate 8 x 8 VC-Grid modules. In grouped control, all the LEDs in one group are controlled using the same DMX channels – three channels for RGB products and one channel for WW, MW and CW products.
- If VC-Grids are set up for individual pixel control, each of the 64 LEDs on a module is controlled by its own DMX channels.

A VC-Grid installation uses the number of DMX channels required by the group or pixel (three channels for RGB and one channel for WW, MW or CW) multiplied by the total number of groups or pixels in the installation. For example, an installation with fifty RGB modules will require:

- 3 DMX channels if the entire installation is controlled as one group,
- 3 channels x 10 groups = 30 DMX channels if the installation is divided into ten groups that are controlled individually,
- 3 channels x 50 modules = 150 DMX channels if each of the fifty modules is controlled as an individual group, and
- 3 channels x 50 modules x 64 pixels = 9600 DMX channels if each of the 3200 pixels is controlled individually (in this example, 19 DMX universes will be required because one DMX universe has 512 channels).

Individual and grouped control can be mixed freely in an installation. For example, some VC-Grid modules can be set up for individual pixel control, other modules can be set up for individual module control, and other modules can be put into groups for grouped control of multiple modules.

DMX addresses

The system must be set up so that each individually controlled group or pixel receives instructions from the DMX controller on its own DMX channels. The DMX address, also known as the control address or start channel, is the first of these channels. If a unit uses more than one channel, it uses the DMX address channel and the channels immediately above it. For example, one VC-Grid RGB module controlled as one group and set to DMX address 1 will use DMX channels 1 - 3. Channel 4 will be available for use as a DMX address for the next device.

If a VC-Grid module is set to individual pixel control (see “Setting modules to grouped or pixel control modes” on page 15), LEDs are given DMX addresses using a ‘left-to-right, then down’ numbering system (like the reading order you are using for the words on this page). For example, if one VC-Grid RGB module is set to pixel control and set to DMX address 1, each of the 64 LEDs will use 3 channels, and the module will use DMX channels 1 - 192 (Channel 1 -3 for the top-left pixel, channels 4 - 6 for the next pixel on the right etc. until it reaches channels 190 - 192 for the last pixel at the bottom on the right. Channel 193 will be available for use as a DMX address for the next device.

If a VC-Grid module is set to module control (see “Setting modules to grouped or pixel control modes” on page 15), it can be controlled as an individual module or assigned to a group of modules. To create a group of modules, give them the same DMX address. All modules that have the same DMX address will receive the same instructions and behave identically.

Setting up via RDM using Martin M-PC™

Using an RDM-compliant DMX controller such as Martin M-PC™, you can communicate with the VC-Grid modules on the DMX data link via RDM. You can:

- Retrieve data
- Set the DMX addresses of the groups or pixels on the link
- Apply various setup options.

To use Martin M-PC, connect a PC running this application to the data link using the Martin USB Duo™ USB/DMX interface box.

See Figure 7. Open the **RDM View** window in M-PC and click on the **Scan** button (arrowed bottom left) to display a list of the RDM-compliant devices on the DMX/RDM data link (in this example, ten VC-Grid RGB modules are present on the link, and all ten modules are set to DMX address 1).

Identifying VC-Grids in the installation

To see which VC-Grid module in this list corresponds to which VC-Grid module in the installation, click on each VC-Grid module in the list once to select it, then click on the **Identify** button at the bottom of the screen. The VC-Grid in the installation that corresponds to the selected VC-Grid in the list will flash a signal so that you can identify it.

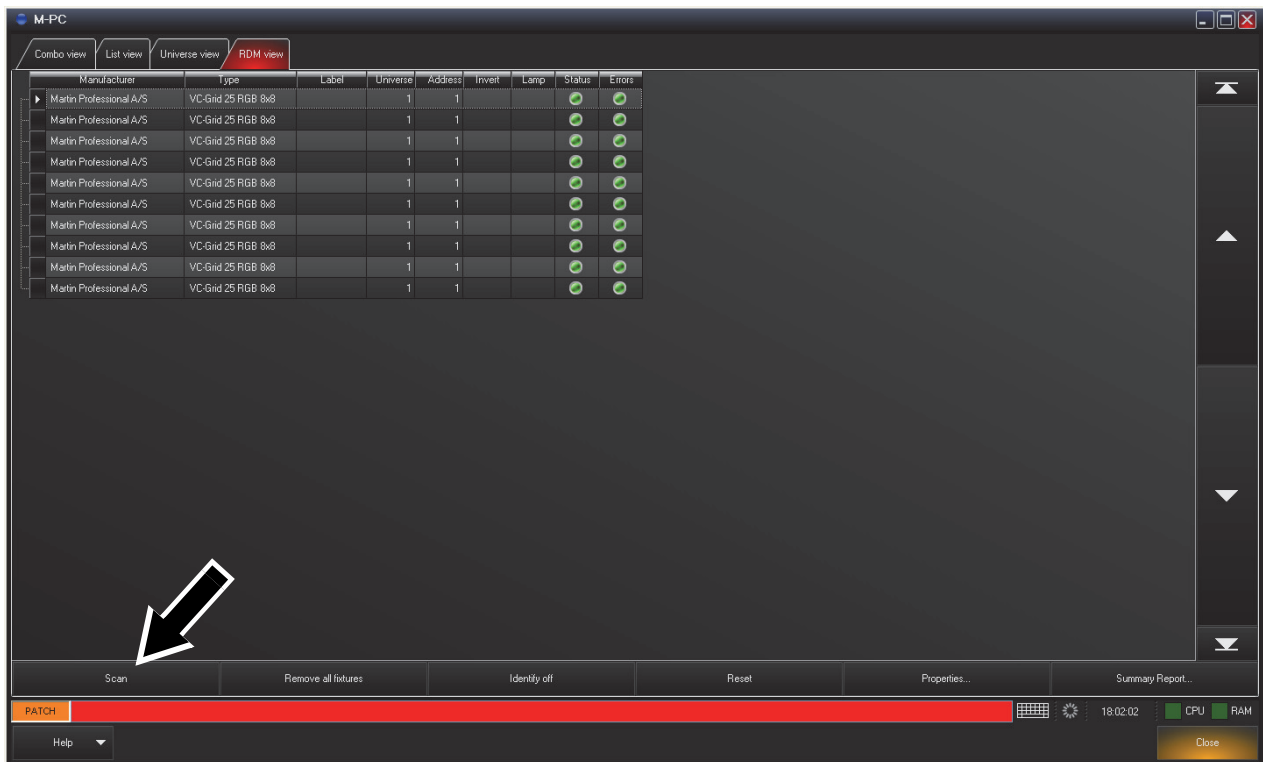


Figure 7: M-PC RDM View

Setting DMX Addresses

See Figure 7. To set DMX addresses using the M-PC application, open the **RDM View** window and click on **Scan** to display a list of the elements in the installation. Click in the **Address** box for each VC-Grid module and enter the desired DMX address, then press the **Enter** key to store the DMX address for that module. Remember that modules with identical addresses will receive the same instructions.

When working with more than one DMX universe, click in the **Universe** box for each VC-Grid module, enter the desired DMX universe number, then press the **Enter** key to store the DMX universe for that module.

Setting modules to grouped or pixel control modes

In pixel mode, the 64 LEDs on a module are controlled individually. In module mode, All the LEDs on one module are controlled as one group.

To set a VC-Grid module to pixel or module mode, calibrated or raw, using M-PC, open the **RDM View** window and click on **Scan** to display a list of the elements in the installation. Select the module in the list, then click on the **Properties...** button at the bottom of the screen to open the Properties window for that module. Select from:

- Pixel mode (calibrated)
- Module mode (calibrated)
- Pixel mode (raw)
- Module mode (raw)

Calibrated and raw modes

See the section on setting control modes above.

In *calibrated* mode, color and intensity levels are evenly matched in different LEDs and different modules but maximum output is slightly reduced.

In *raw* mode, LEDs give maximum possible output but color and intensity levels may be slightly uneven in different LEDs and different modules.

Using the VC-Grid



Warning! Before applying power to the VC-Grid:

- **Carefully review the safety information starting on page 4**
- **Check that the installation is safe and secure.**

Do not use the VC-Grid if the ambient temperature exceeds 45° C (113° F) or falls below -20° C (-4° F).

P3 display

The VC-Grid will display video from all common video sources sent via a P3 controller. See the P3 controller documentation for details.

DMX control

The VC-Grid will display effects controlled by DMX. An RDM-compatible controller is strongly recommended, as RDM allows two-way communication. See the controller documentation for details.

Local control button

The small control button on the back of the VC-Grid (see Figure 1 on page 7) lets you display the product's status, test the LEDs and reset the VC-Grid.

Test patterns are stored in onboard memory. This lets you test the LEDs without an external controller.

Table 1 below lists the control button functions:

Button action	Function
Short press	The first press displays status as shown in Table 2 for a few seconds. The next presses display the following test patterns on the LEDs (one short press scrolls to next pattern): <ul style="list-style-type: none">- Calibrated white- Full red- Full green- Full blue- Vertical scrolling gradient
Press and hold until all LEDs light blue	Reboot the VC-Grid.
Press and hold until all LEDs light white	Return the VC-Grid to its default factory firmware.

Table 1: Key to control button functions

The test patterns that are stored in internal memory let you check that the video display products in an installation are correctly connected without the need for a P3 system controller.

Note that test patterns can also be called up on P3 system controllers and the P3 PowerPort 1500™.

LED status feedback

The VC-Grid gives status information via its LEDs as shown in Table 2:

Color	Output	Indication	Action required
Blue	Constant	Busy (e.g. booting up or writing to flash memory).	Wait a moment for normal operation to be resumed.
Red	Constant	Error. The VC-Grid has encountered a fatal error and can not run.	Perform a factory reboot, followed by a firmware upload.
Red	Flashing	No control source detected.	Connect a P3 system controller or DMX source to the network.
Green	Flashing	Ready. VC-Grid connected to P3 controller but not receiving valid P3 data stream.	Set up the P3 controller to use the products connected to the VC-Grid.
Green	Constant	Running normally in P3 mode.	None.
Cyan	Flashing	Ready. VC-Grid connected to DMX controller but not receiving valid DMX data stream.	Set up the DMX controller to use the products connected to the VC-Grid.
Cyan	Constant	Running normally in DMX mode.	None.

Table 2: Key to LED status information

To display status, press the control button once. Four LEDs will give one of the indications listed in Table 2 for a few seconds.

Service and maintenance



Warning! Read “Safety Information” on page 4 before carrying out service on the VC-Grid.

Warning! Isolate the installation from AC mains power before servicing.

Warning! Refer any service operation not described in this manual to a qualified service technician.



Important! Read “Electrostatic discharge precautions” on page 6 before carrying out service on the VC-Grid.

Important! Excessive dust buildup causes overheating and a risk of short-circuits and will damage the product. Damage caused by inadequate cleaning is not covered by the product warranty.

The user will need to clean the VC-Grid periodically. All other service operations on the VC-Grid must be carried out by Martin Professional™ or its approved service agents.

Installation, on-site service and maintenance can be provided worldwide by the Martin Professional Global Service organization and its approved agents, giving owners access to Martin’s expertise and product knowledge in a partnership that will ensure the highest level of performance throughout the product’s lifetime. Please contact your Martin supplier for details.

Cleaning

Cleaning schedules vary greatly depending on the operating environment. It is therefore impossible to specify precise cleaning intervals for the VC-Grid. In extreme cases, the product may require cleaning after surprisingly few hours of operation. Environmental factors that may result in a need for frequent cleaning include:

- Use of smoke or fog machines.
- High airflow rates (near air conditioning vents, for example).
- Presence of cigarette smoke.
- Airborne dust (from stage effects, building structures and fittings or the natural environment in outdoor locations, for example).

If one or more of these factors is present, inspect products soon after installing them to see whether cleaning is necessary. Check again at frequent intervals. This procedure will allow you to assess cleaning requirements in your particular situation. If in doubt, consult your Martin™ dealer about a suitable maintenance schedule.

Important! *Electrostatic discharges may cause damage. Do not touch the VC-Grid with fingers or a compressed air nozzle.*

To clean the product, use low-pressure compressed air to gently remove dust and loose particles from the front and back of the product. Avoid touching the product’s conductive surfaces and electronic components.

Installing new software

It may be necessary to upload new software (i.e. device firmware) to the VC-Grid if it appears to have a software-related fault or if you want to update to a newer software version.

Software for Martin™ products is available from the Martin website. The VC-Grid software can be installed from the P3 System Controller over the P3 data link. See the P3 System Controller user manual for software installation instructions.

Troubleshooting

Problem	Probable cause(s)	Remedy
Control is lost and pressing control button causes VC-Grid to show constant or flashing red status indication.	Error has occurred.	Check that system is correctly connected, set up and running. Hold control button pressed in until it turns blue, then release, to reboot VC-Grid. Restart P3 or DMX controller.
Product is completely dead.	No DC power to product.	Check 48 VDC power supply and cables
	Internal fault.	Disconnect from power. Do not attempt repairs yourself. Contact Martin™ Service or an authorized Martin™ service partner for assistance.
VC-Grid does not display as intended.	Bad 48 VDC power transmission.	Inspect connections and cables. Correct poor connections. Repair or replace damaged cables.
	Bad data transmission.	Inspect connections and cables. Correct poor connections. Repair or replace damaged cables.
	Incorrect mapping or addressing of products.	Check product address and controller settings.
	Product in installation is defective and is disturbing data transmission.	Substitute known good products one at a time until normal operation is regained. Have faulty product serviced by Martin™ Service.

Table 3: Troubleshooting

Specifications

Physical

Length	185 mm (7.3 in.)
Width	185 mm (7.3 in.)
Height	18 mm (0.7 in.)

Control and programming

Control options	Martin™ P3 System Controller (via Martin™ P3 PowerPort 1500) or DMX
Protocol detection	Automatic
Control modes	Calibrated and raw, pixel and module
DMX channels (RGB)	192 (pixel mode) or 3 (module mode)
DMX channels (WW, MW and CW)	64 (pixel mode) or 1 (module mode)
Setting and addressing	P3 System controller or RDM-compliant controller
Control resolution	16-bit (P3) or 8-bit (DMX) control of each color
Color and intensity calibration	Pixel-level
Video signal compliance	Martin P3™ proprietary protocol
DMX compliance	USITT DMX512-A
RDM compliance	ANSI/ESTA E1.20
Firmware update	Via P3 System Controller

Optics

Minimum LED lifetime	50 000 hours (to >70% luminous output)*
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**Manufacturer's figure obtained under manufacturer's test conditions*

Control/user interface

Device status	Multi-color visual indication
Device test	Control pushbutton on rear calls up local test patterns
Device reset	Control pushbutton on rear

Video processing

Brightness control
Gamma correction and control
Color temperature control
Calibration processing
Synchronization

Photometric Data

Pixels per module	64
Color temperature, WW	2700 K
Color temperature, MW	4000 K
Color temperature, CW	6500 K
Luminous intensity, RGB, calibrated mode	4000 Nit
Luminous intensity, RGB, raw mode	5000 Nit
Luminous intensity, WW, calibrated mode	10 000 Nit
Luminous intensity, WW, raw mode	11 000 Nit
Luminous intensity, MW, calibrated mode	10 000 Nit
Luminous intensity, MW, raw mode	11 000 Nit
Luminous intensity, CW, calibrated mode	10 000 Nit
Luminous intensity, CW, raw mode	11 000 Nit
Viewing angle	120° x 120°

Preliminary data, figures are approximate

System Integration

P3 PowerPort 1500™	P/N 90721040
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See www.martin.com for latest information.

Construction

Base	Black FR4 circuit board
Transparency through module (unmasked area)	37%
Protection rating	IP20
RoHS compliant	

Installation

Orientation	Any
Maximum number of VC-Grid™ 8x8 25 modules per daisy-chain	12
Mounting method	Mounting holes in module
Minimum clearance around front surface	10 mm (0.4 in.)

Connections

Power & data input	4-pin Molex male PCB connector
Power & data thru	4-pin Molex female PCB connector

Electrical

Nominal input voltage	48 VDC from Martin P3 PowerPort 1500™ or external PSU
Typical power consumption	30 W (including cable in 50 m chain), full load at full intensity
Typical current draw	0.625 A (including cable in 50 m chain), full load at full intensity

Thermal

Cooling	Convection
Maximum ambient temperature (Ta max.)	45° C (113° F)
Minimum ambient temperature (Ta min.)	-20° C (-4° F)

Approvals



EU safety	EN 60950-1
EU EMC	EN 55103-1, EN 55103-2, EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3
US safety	UL 60950-1
US EMC	FCC Part 15 Class A
Canadian safety	CSA C22.2 No. 60950-1
Canadian EMC	ICES-003 Class A
Australia/NZ	C-Tick N4241

Accessories

Power + data adapter cables

Hybrid adapter cable, 4-pin male XLR to PCB connector, 0.25 m (0.8 ft.)	P/N 11840158
Hybrid adapter cable, PCB to 4-pin XLR female, 0.25 m (0.8 ft.)	P/N 11840159
Hybrid lead-in adapter cable, 5-pin male XLR + two cable tails to 4-pin female XLR, 0.25 m (0.8 ft.)	P/N 11840171

Power + data VC-Grid to VC-Grid link cables

Hybrid link cable, PCB to PCB, 200 mm (7.9 in.)	P/N 11840160
Hybrid link cable, PCB to PCB, 400 mm (15.7 in.)	P/N 11840161
Hybrid link cable, PCB to PCB, 600 mm (23.6 in.)	P/N 11840162
Hybrid link cable, PCB to PCB, 800 mm (31.5 in.)	P/N 11840163
Hybrid link cable, PCB to PCB, 1000 mm (39.4 in.)	P/N 11840157

Power + data extension cables

Hybrid 4-pin XLR extension cable, 1 m (3.3 ft.)	P/N 11821016
Hybrid 4-pin XLR extension cable, 2.5 m (8.2 ft.)	P/N 11821017
Hybrid 4-pin XLR extension cable, 5 m (16.4 ft.)	P/N 11821018
Hybrid 4-pin XLR extension cable, 10 m (32.8 ft.)	P/N 11821019
Hybrid 4-pin XLR extension cable, 25 m (82.0 ft.)	P/N 11821015

Hybrid cables carry both DC power and data over separate conductors.

Related Items

P3 PowerPort 1500™	P/N 90721040
P3-100™ System Controller	P/N 90721010
P3-200™ System Controller	P/N 90721020
P3-PC™ System Controller	P/N 90721030
M-PC™ Pro (up to 64 DMX universes) incl. Martin USB Duo™ DMX Interface Box.	P/N 90732010
Martin RDM 5.5 Splitter™	P/N 90758150

See www.martin.com for latest information

Ordering information

VC-Grid™ 8x8 25 RGB	P/N 90357010
VC-Grid™ 8x8 25 WW	P/N 90357000
VC-Grid™ 8x8 25 MW	P/N 90357030
VC-Grid™ 8x8 25 CW	P/N 90357020

Specifications subject to change without notice. For the latest product specifications, see www.martin.com

FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Interference-Causing Equipment Regulations - *Règlement sur le Matériel Brouilleur du Canada*

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le Matériel Brouilleur du Canada.



Disposing of this product

Martin™ products are supplied in compliance with Directive 2002/96/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), as amended by Directive 2003/108/EC, where applicable.

Help preserve the environment! Ensure that this product is recycled at the end of its life. Your supplier can give details of local arrangements for the disposal of Martin products.



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